# 5. PROCEDURES

## 5.1 Overview

Numerous international, national, and Departmental-level initiatives are changing technologies as well as methodologies for using radiocommunication services. These initiatives require changes to the procedures for the management and use of radiocommunication systems and associated spectrum resources. Figure 1 depicts the procedures and the responsibilities between the field entities and Headquarters for the planning, acquisition, and use of radiocommunication services and spectrum resources in accordance with the initiatives.

Radiocommunication service needs for normal and emergency situations in support of Departmental mission, programmatic, and operational requirements for the four lines of business and corporate management will be included in the DOE-wide radio and spectrum plans as soon as sufficient planning has been accomplished by all Departmental entities and the Wireless Working Group. During the transition planning phase, a number of analyses of system, acquisition, and implementation alternatives and their costs will be conducted to ensure the acquisition of the most cost-effective and spectrum-efficient services to DOE.

With the approval of the transition plans, system plans and their spectrum requirements will be submitted to the CIO for certification, authorization, and renewal or deletion purposes in compliance with the NTIA Manual, Chapters 4-10. This procedure is necessary whenever a major system is acquired and spectrum certification is required. An abbreviated procedure is necessary only when new operational planning and a frequency authorization are required. When the Departmental elements have received the certifications and/or authorizations, they may acquire and use the radiocommunication services. Authorizations must be renewed every five years during the life-cycle of the system or operation. When the Departmental elements have no further need for these services, systems, and authorizations, they should inform the CIO to delete the frequency authorizations.

## 5.2 Transition Planning

Current policies require the replacement of existing land mobile radio services by FY2005 and FY2008. Existing land mobile radio services can be replaced using an evolutionary approach (narrow banding or broadbanding technologies), a revolutionary approach (such as personal communication services), or a mixed approach tailored to the mission, programmatic, or operational needs of a specific entity. Other considerations that effect the decision are the new operational requirements to support voice, data, messaging, imaging, and/or video needs; the use of available commercial terrestrial and satellite services to the maximum extent feasible and practical; and the application of service supports such as communications, transportation, or public safety.

Other initiatives to be considered in the planning process are the transfer of Government-allocated spectrum resources to the private sector to generate additional revenues for the U.S. Treasury through spectrum auctions. As a result of transferring 235 MHz, the relocation to other frequency bands or transmission media of displaced Government operations must be accomplished between now and FY 2004. Additional initiatives are the deployment of a nationwide public safety network (the plan is currently being developed), the reimbursement costs to NTIA for spectrum management services rendered to the Department, and the use of cost-benefits analysis in this era of downsizing and budget constraints to justify recommended planning actions.

All Departmental elements planning, acquiring, and using radiocommunication services and associated spectrum resources should submit their planning needs to the Wireless Working Group. The Wireless Working Group will develop DOE-wide radio and spectrum transition plans that implement the new national and departmental policies, plans, and other initiatives. These plans could include Radiocommunication Services Relocation Plan, Spectrum Efficiency Plan, Strategic Spectrum Plan, Strategic Land Mobile Radio Plan, and Strategic Radio-communication Services Plan. These plans will be coordinated throughout the Department prior to being submitted to the DOE Information Management Council and the CIO for approval.

The objective of the Radiocommunication Services Relocation Plan is to relocate existing services that have been displaced or will be displaced in the future by the transfer of Government-allocated spectrum resources to the private sector to other frequency bands or another transmission media. The objective of the Spectrum Efficiency Plan is to review existing frequency authorizations to ensure maximum use of the minimum number of spectrum resources, to delete unneeded authorizations, and to minimize NTIA's reimbursement costs. The objective of the Strategic Spectrum Plan is to develop a transition plan for the efficient use of spectrum resources for the 21st Century. The objective of the Strategic Land Mobile Radio Plan is to implement the NTIA spectrum efficiency plan and the national public safety wireless network plan. The objective of the Strategic Radiocommunication Services Plan is to develop a transition plan for the use of conventional and emerging wireless telecommunication services.

## 5.3 Coordination

The extensive use of radiocommunication services and associated spectrum resources requires comprehensive coordination at the National, Government, Departmental, regional, and local levels. Coordination is necessary in the planning process as well as the spectrum certification and frequency authorization processes. Coordination of the plans will be accomplished throughout the Departmental entities, the DOE Wireless Working Group, Networking Group, Information Management Council, CIO, and FWPC and IRAC as required. Spectrum certifications will be coordinated at the local, Departmental, and national levels. Frequency authorizations will be coordinated at the local, regional, Departmental, and national levels. All spectrum and wireless (both licensed and non-licensed) acquisitions shall be coordinated with the Area Frequency Coordinator. Chapters 3, 7, and 8 of the NTIA Manual present the coordination procedures.

### 5.3.1 National

The demands upon the spectrum and national policy require centralized management to prevent harmful interference and to ensure operational integrity. Within DOE, spectrum management coordination is decentralized as much as practical with the general requirement that the CIO be apprised of all operations unless specifically exempted.

### 5.3.2 Governmental/Non-Governmental Operations

Departmental elements and DOE contractors having requirements involving operations with non-Government entities shall obtain and forward with the frequency application request a letter of agreement to conduct joint Government and non-Government operations. The agreement should designate the agency responsible for obtaining the Government/non-Government frequency authorization.

DOE maintains liaison with the FCC through the NTIA/IRAC structure. The frequency application request should contain sufficient identifying information and/or contract number to enable both FCC and DOE to determine and assign responsibility for the frequency assignment.

### 5.3.3 Interagency Operations

Radiocommunication programs involving DOE and other Governmental agencies require that a joint frequency application request for authorization be submitted. Negotiations for DOE or DOE contractor support for joint programs will be accomplished by the CIO at the national level with the concerned Governmental agency. The joint application, when approved by NTIA, will authorize frequency use for the specific joint program by any of the agencies involved.

Proponents of a joint program must file an application to be signed by authorized representatives of both agencies at the national level. Normally, the program sponsor should file the joint application through its Department's spectrum management channels. It is the responsibility of the participating headquarters to identify the program in sufficient identifying detail to its respective national frequency authorities to facilitate processing at the national level.

### 5.3.4 Reimbursable Telecommunications Work

DOE provides support to the Department of Defense (DOD) in the development and testing of weapons components that use spectrum resources. Periodically, this requires DOE field activities to procure and operate radiocommunication equipment on a reimbursable basis. Since the equipment required for these operations will eventually transition to DOD use, the accepted practice is for DOD to obtain spectrum certification through DOD channels. This practice has not been consistently followed. It is necessary for DOD to obtain spectrum resources at the outset, since DOE cannot realistically evaluate the national and international radio frequency environment in which DOD intends to employ those weapons.

The intent of the following procedures is to ensure that, prior to the commencement of reimbursable work, spectrum support has been considered and is part of the contractual arrangement between DOE and DOD. These procedures should be included in local telecommunication management and acquisition directives and procurement actions. These procedures were also forwarded to DOD for distribution to their field activities to preclude program development delays or the need for expedited treatment due to the lack of notification that spectrum for the equipment had been approved.

To avoid any delays in the future, the following procedures in regard to cost reimbursable contracts negotiated with DOE field activities will be implemented:

1. The DOD will prepare the appropriate DD Form 1494 for processing through DOD channels to obtain frequency allocation certification.

2. The DOD Interdepartment Radio Advisory Committee (IRAC) member will provide an information copy of the DD Form 1494 to the DOE IRAC member prior to submission to the National Telecommunications and Information Administration (NTIA).

3. The DOD IRAC member will advise the DOE IRAC member of the recommendation resulting from the DOD review.

### 5.3.5 Experimental Programs

Since these requirements are ill-defined and must be treated on an individual basis, all elements of the Department have been charged by DOE 5300.1C to obtain assistance and approval from DOE Headquarters prior to the purchase and use of electromagnetic equipment not used for telecommunications and not in accord with the provisions of regulations. NTIA Manual Section 7.11 applies.

Within DOE, the current NTIA authorized experimental stations are:

- DOE Sandia National Laboratories, Livermore, California
- DOE Sandia National Laboratories, Albuquerque, New Mexico
- DOE Nevada Operations Office, Las Vegas, Nevada
- DOE Los Alamos National Laboratory, Los Alamos, New Mexico
- DOE Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho

As a preliminary requirement, the CIO requires as much of the following elements as can be identified.

- Name of program
- Sponsoring office
- Responsible individual (project office) to include location and telephone number
- Site of experiment
- Description and nomenclature of electromagnetic equipment, including recommended frequency band, type(s) of emission, bandwidth, power, and number of units
- Authorized radio services subject to potential harmful interference
- Potential environmental impact of electromagnetic radiation, especially if hazardous powers are involved
- Description of how the electromagnetic requirement supports the program and the expected ultimate results

### 5.3.6 Power Line Carrier (PLC) Program *(Revised 12/1999)*

In spite of the extensive use of PLC systems by DOE and the interference potential for mutual disruption, carrier current is not a radio service. Since the Low Frequency Radio Frequency (RF) signals generated by PLC systems can interfere with the operation of other Low Frequency communication systems such as navigation systems used by Departments of Defense and Transportation, their use needs to be coordinated within the Government. Even though PLC systems use Low Frequency RF Spectrum, NTIA does not coordinate their use since most of the users are from industry, and their carrier current systems are not considered a radio service. However, NTIA's procedures address notification of intent to place new or revised Low Frequency PLC systems and frequencies in use, and urge users to minimize potential interference to the degree practicable. Within the Department, all PLC operations shall be accounted for as frequency assignments. Frequencies proposed and in use shall be forwarded to the United Telecom Council (UTC), an industry group, formerly the Utilities Telecommunications Council, to be included in the National PLC database maintained by UTC. Frequencies shall be mailed to: jsalley@utc.org or United Telecom Council, ATTN: Joann Salley, 1140 Connecticut Ave, NW, #1140, Washington, DC 20036. An updated electronic copy of this database is maintained in DOE's Spectrum Management Office at Headquarters in order to be as responsive as possible to future coordination requests or to interference complaints.

### 5.3.7 Emergency Operations

Under certain emergency conditions, spectrum resources may be used without a frequency authorization, as specified in Section 7.3 of the NTIA Manual. Generally, these conditions pertain to actual or imminently threatening national catastrophes or occurrences seriously endangering human life and property. Such temporary operations are permissible on regularly assigned frequencies utilizing existing equipment in a manner and in areas other than that specified on the existing authorization. Operations must cease as soon as normal communications are restored. Discretionary exercise of this authority must be undertaken with extreme care. In the event it becomes necessary to use emergency operational procedures, the CIO will be notified immediately by telephone. Such telephone notification will be followed by a priority message describing in detail the nature of the emergency and specifying the actions deviating from the norm.

### 5.3.8 Trunked Land Mobile Radio Operations/Usage Reports

DOE field activities may establish trunked land-mobile radio systems separately or cooperatively with other Federal Government agencies. If the field activity shares the system as an individual user, it is not required to obtain a frequency authorization. The frequency assignment authorization must be obtained for all stations that use the system by the installing agency or a designated lead agency responsible for managing the system.

If a privately contracted Specialized Mobile Radio (SMR) service is leased, DOE will process a frequency proposal to NTIA to obtain authorization and FCC coordination to operate. This authorization will remain valid as long as the lease is valid.

NTIA Manual, Sections 10.8.3 and 10.8.4 present the specific needs to prepare annual reports regarding the usage of trunked land mobile radio.

### 5.3.9 New Mexico

Within the State of New Mexico, all frequency application requests in the following bands shall be coordinated with the military Area Frequency Coordinator (AFC), White Sands Missile Range (WSMR) prior to submitting applications to the CIO.

| | | |
|---|---|---|
| 138 - 144 MHz | 1215 - 1300 MHz | 2700 - 3700 MHz |
| 148 - 150.8 | 1300 - 1350 | 5250 - 5350 |
| 261 - 400 | 1427 - 1535 | 5650 - 5925 |
| 408 - 410 | 1710 - 1850 | 8500 - 10250 |
| 420 - 450 | 2200 - 2290 | |
| 470 - 550 | 2300 - 2450 | |

- Coordination will be in accordance with the MOU (see Appendix B) between DOE and the Department of the Army.

- All Departmental offices proposing operations within the State of New Mexico shall request the DOE Albuquerque Operations Office to perform the necessary pre-assignment coordination with WSMR.

### 5.3.10 Nevada

DOE and the Department of the Air Force have negotiated an MOU governing procedures to be used by departments for radio frequency coordination in the State of Nevada (see Appendix B). The MOU is to be used as the basis for negotiating local frequency management agreements.

The DOE Nevada Frequency Coordinator is responsible for coordination of all frequency requirements in support of Departmental operations in the State of Nevada with the DOD Continental Operating Range Area Frequency Coordinator (COR AFC) and with other impacted users prior to submitting applications to the CIO. Coordination will be in accordance with the procedures specified in the DOE/USAF MOU.

### 5.3.11 Pacific Ocean Areas

All operations in the Pacific require coordination with the DOD Commander-in-Chief, Pacific (US CINCPAC). The DOE Nevada Frequency Coordinator provides all DOE liaison with US CINCPAC, and is therefore responsible for pre-assignment coordination in the Pacific and in Hawaii. Any coordination that may be required with US CINCPAC subsequent to the assignment of frequencies will also be effected by the DOE Nevada Frequency Coordinator (or with his concurrence). Offices proposing operation in this area by Departmental personnel and contractors not under the jurisdiction of the NV will request US CINCPAC coordination. These offices will inform NV of the proposed operation by memorandum containing the elements normally required to substantiate a frequency request. After coordination is completed with US CINCPAC, NV will furnish the requesting office and the CIO comments of US CINCPAC regarding the proposed frequencies.

### 5.3.12 DOD Ranges

When DOE elements or contractors conduct tests at military ranges or facilities, they must use frequencies authorized for the Department by the FAS. If the required frequencies are already assigned to the Department for use at the test range concerned, the range frequency coordinator will provide interference protection as necessary.

If such frequencies are not authorized, the proposed frequencies shall be coordinated locally with the appropriate military frequency coordinator prior to submitting applications to the CIO, for

normal processing through the IRAC/FAS channels. The coordinator shall also furnish the CIO a statement indicating that local frequency coordination has been accomplished and verify that concurrence has been obtained from the commander of the military installation.

### 5.3.13 Vicinity of Grand Forks, North Dakota

IRAC, at the request of the DOD, requires advance coordination with the Army IRAC representative for any field use of frequencies in the 406-420 MHz band within 50 miles of an area bounded by coordinates 4748N, 4939N, 9631W, and 9917W near Grand Forks, North Dakota. This coordination shall be affected through the CIO.

### 5.3.14 Field Level Coordination Procedures

All proposed frequency assignments on the frequency 1030 MHz or in the frequency bands 1215-1400, 1435-1535, 2310-2390, 2700-2900, and 9000-9200 MHz will be coordinated with the appropriate coordinator as indicated below. Coordination will be completed in writing prior to submitting the applications to the CIO.

If the applicant wishes, the Coordinator may recommend a frequency based on the applicant's requirements and the technical particulars furnished by the applicant. The Coordinator will inform the applicant of the probability of any harmful interference involving the requested assignment and, if appropriate, will recommend alternatives and/or restrictions to preclude such interference. The Coordinator's comments to the applicant will be based on records of spectrum usage in the geographical area of responsibility and such additional coordination with other entities and activities in that area deemed appropriate. For the band 1435-1535 MHz, coordination will be with the AFTRCC.

The applicant will ensure that appropriate comments of the Coordinator are included on the application submitted to the FAS. The FAS will not approve applications unless they bear the appropriate C-note indicating completion of coordination required by this procedure. For the band 1435-1535 MHz these C-notes read:

> "This frequency assignment in the band 1435-1535 MHz was coordinated prior to authorization with (the name of coordinator) who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination, as necessary, with (the name of coordinator) to ensure compatibility with existing uses."

The NTIA and FCC must also receive a written copy of AFTRCC concurrence in the proposed frequency use prior to FAS approval. For 1030 MHz and the bands 1215-1400, 2310-2390, 2700-2900, or 9000-9200 MHz, these C-notes read:

"This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2310-2390, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with (the name of coordinator). Use of this frequency or band under the authority of this assignment is subject to such further coordination with (the name of coordinator), as necessary, to ensure compatibility with existing uses."

Only one coordination note for the area concerned shall be applied to such assignments. The appropriate C-notes are:

1435-1535 and 2310-2390 MHz

C003 - Western AFC, PT. Mugu, California
C005 - Eastern AFC, Patrick AFB, Florida
C007 - AFC, WSMR, New Mexico
C009 - AFC, Ft. Huachuca, Arizona
C011 - Gulf AFC, Eglin AFB, Florida
C016 - HQ USAF Frequency Coordinator, Washington, D.C.
C023 - AFC Western US, San Francisco, California
C024 - AFC Central US, Ft. Sam Houston, Texas
C068 - Area Frequency Coordinator, Nellis AFB, Nevada
C086 - Mid Atlantic Area Frequency Coordinator, Patuxent River, Maryland

1030, 1215-1400, 2700-2900, 9000-9200 MHz

C042 - FAA Northwest Coordinator, Seattle, Washington
C043 - FAA Western Coordinator, Los Angeles, California
C045 - FAA Central Coordinator, Kansas City, Missouri
C046 - FAA Southwest Coordinator, Ft. Worth, Texas
C047 - FAA Great Lakes Coordinator, Des Plaines, Illinois
C048 - FAA Southern Coordinator, Atlanta, Georgia
C049 - FAA Eastern Coordinator, New York, New York
C050 - FAA New England Coordinator, Burlington, Massachusetts
C071 - FAA Alaskan Coordinator, Anchorage, Alaska
C072 - FAA Pacific Coordinator, Honolulu, Hawaii

Addresses and phone numbers for all Frequency Coordinators can be found in Annex D of the NTIA Manual.

### 5.3.15 Foreign Operations

The radio frequency spectrum is a natural resource of each sovereign nation. U.S. operations in foreign countries are conducted with the express permission of the host country involved. Such foreign operations and operations capable of interfering with foreign radiocommunication systems conducted by the United States involve time-consuming negotiations through the Department of

State (DOS). Requirements should be anticipated and requested as soon as definitive program elements are identified. As a minimum, the request should precede the operational date by 6 months.

Normally, requests for use of frequencies in support of programs in foreign countries are submitted through the CIO for coordination with DOS (See DOE 5300.1C). The following information should be included with the request.

- Name of host government
- Name of program
- Name of agency(ies) sponsoring the program
- An indication of whether or not the program has the host government's approval and at what level
- Identification of channels used in obtaining preliminary coordination and program approval (academic, scientific, technical, etc.)
- Identity of the points of contact to include names, titles, location, and telephone numbers of individuals responsible for both the sponsoring agency and the host government
- A list of required frequencies, stating location, station class, power, necessary bandwidth, type(s) of emission, starting and ending dates for the program on-air portion of the requirement, and the number of units (fixed and mobiles) associated with each frequency proposed
- A brief description of how the radiocommunication system will support the program
- Why and how the foreign government is involved, including a statement as to why the program could not be conducted entirely within the United States

Special procedures are dictated by situations involving deployment of the DOE NEST/Aerial Measurement System (AMS). Deployment of the NEST/AMS capability to a foreign country is controlled by the DOE Emergency Operations Center (EOC). Concurrent with the decision to deploy the NEST/AMS, the authority to operate the accompanying spectrum dependent equipment in the host country will be obtained by the CIO in coordination with the DOS.

## 5.4 System Planning

System planning will amplify information required by program and budget offices, correlate with DOE-wide plans, and identify systems designated to support normal and national security and emergency preparedness (NS/EP) operations in compliance with the DOE Information Management Strategic Plan and DOE Radiocommunication Services Transition Plan. System planning will be reviewed to assess its compliance with national policies and spectrum management rules, regulations, and standards as found in Chapters 4 through 10 of the NTIA Manual. It is the objective to ensure that:

- All planning facets, including NS/EP and intra- and interagency sharing of resources, have been considered;
- Local management support has been obtained;
- Appropriate system engineering and cost-benefit analysis have been accomplished;
- The time element involved in obtaining approvals for system planning, spectrum certification, and frequency authorization from Headquarters and national authorities considers planned operational dates;
- Leasing versus purchasing has been considered;
- Improved effectiveness, efficiency, and economy of operation have been considered; and
- Any additional information which will support the program requirements at the national level have been included.

## 5.5 Spectrum Certification

All space and terrestrial systems with a major impact upon the electromagnetic environment require a system review by the IRAC Spectrum Planning Subcommittee (SPS) to ensure that spectrum resources are utilized in the national interest and are available. Four reviews by the SPS are conducted at the outset of the planning, experimental, developmental, and operational stages. No specific frequency authorizations will be obtained by DOE until spectrum certification has been granted by the NTIA based upon the recommendations and limitations set forth by IRAC and SPS. Within DOE, the CIO is responsible for determining which systems, based upon System Planning, are subject to the scope of this procedure. Spectrum certification procedures are detailed in Chapter 10 of the NTIA Manual. Notification of spectrum certification by the CIO that the

proposed spectrum is available for the specified end use is required prior to the expenditure of funds for the acquisition of the radiocommunication system and prior to the operation of the system.

### 5.5.1 Standards

The CIO requires that telecommunication equipment purchased by the Department, its field organizations, and contractors conforms to the spectrum standards given for such systems as contained in Chapter 5 of the NTIA Manual. Failure to comply with these standards may result in the equipment being shut down by NTIA.

Generally, equipment offered by U.S. vendors conforms to FCC standards. Since Government requirements may vary from those of the FCC, Department organizations and contractors cannot assume that commercial equipment considered for Departmental use will meet NTIA requirements. DOE has no charter for research and development of telecommunication equipment except in those experimental areas in which spectrum utilization and supporting equipment are essential and unique to DOE requirements. In such cases, specific guidance must be developed and provided on a case-by-case basis by the CIO.

### 5.5.2 Design

System designers will be guided by the provisions of DOE O 430.1-1 (http://www.explorer.doe.gov:1776/htmls/regs/doe/newserieslist.html). A major additional consideration is the impact of the proposed system on the existing and planned electromagnetic environment of the operational area. Heavy concentrations of electronic equipment may preclude installation of a new system without special engineering and/or administrative agreements acceptable to both non-Government and Government spectrum users. To preclude mutual harmful interference with any proposed or existing systems, detailed frequency coordination and engineering analysis may be required and is essential prior to coordination at the national level.

### 5.5.3 Acquisition

In the preparation of technical specifications, applicable Departmental directives, NTIA rules and regulations, and Federal standards will be followed. These regulations shall be supplemented by applicable standards published by the Electronic Industries Association or Institute of Electrical and Electronic Engineers. The format of the technical specifications submission is left to the discretion of the individual field organization, but the submission should contain sufficient detail to enable the CIO to validate and support the requirement.

Acquisition sources include competitive procurement, the GSA Federal Supply Schedule Cumulative, FSC 58 Part VII, and Government Surplus. In acquiring equipment from any source, the user must assure that for the intended use, the equipment is in conformance with the National

Table of Frequency Allocations contained in the NTIA Manual. Particular care must be exercised in obtaining Government Surplus or Federal Supply Catalogue equipment to ensure that the equipment is in compliance with the Chapter 5, Standards, of the NTIA Manual.

### 5.5.4 Installation

Radiocommunication systems are to be installed in accordance with safety standards and electrical codes prescribed by DOE G 430.1-1. Applicable local ordinances will be considered. In all cases involving security, the requirements specified in DOE M 200.1-1 (http://www.explorer.doe.gov:1776/htmls/regs/doe/newserieslist.html), must be followed. Adjustments or interconnections (i.e., antenna coupling arrangements, etc.) affecting the transmitted emission parameters must be performed by qualified technicians.

### 5.5.5 Radiation Hazards

For leased and Government-owned systems, due consideration must be given to the NTIA Manual, Section 8.2.28 to ensure that exposure to high intensity levels of RF and other non-ionizing electromagnetic energy presents no potential health hazards. American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and physical Agents and Biological Exposure Indice" (most recent edition), applies.

## 5.6 Frequency Authorization

All radiocommunication systems require a frequency authorization to operate the system. Frequency authorization procedures are detailed in Chapter 9 of the NTIA Manual. Frequency application requests must be submitted through the CIO to the IRAC/Frequency Assignment Subcommittee (FAS) for review in order to obtain authority for a Government-sponsored radiocommunication station to use a frequency within the United States and Possessions at a specific location.

NTIA authorizes the use of a frequency based upon the recommendations and limitations set forth by IRAC and FAS. Notification of frequency authorization by the CIO that the proposed frequency is available to operate this system in its intended operational environment is required prior to operating the system.

If any transmitters are to be installed in or near a building that houses the processing of classified information, the site TEMPEST Coordinator should be contacted prior to installation to ensure that telecommunication security concerns are addressed as required in the DOE Telecommunications Security Manual.

Operations are prohibited until authorization is received indicating that the national spectrum management authority has authorized use of the requested frequency resources.

## 5.7 Frequency Review Program

As a minimum, frequency assignments must be reviewed every five years. Frequencies are authorized by NTIA for a period of up to five years. The NTIA policy requires each Government agency to maintain a program of continuing review of its frequency authorizations and to amend or delete such authorizations as appropriate. Within the Department, each entity will review its authorizations prior to their review date and take the appropriate action. If action is not taken by the review date, NTIA will automatically delete the authorizations; and the operation that this frequency supports must cease. The RVD field of the assignment shows the last review date. Annex F of the NTIA Manual presents the frequency assignment review procedure.

## 5.8 Frequency Deletion

Spectrum resources are valuable resources that are auctioned to the highest bidder in the private sector and that the Department pays fees to NTIA annually for their use. NTIA determines reimbursement costs for the next fiscal year based on their operating costs and the number of frequency authorizations requested by each Federal agency at the end of June of the current fiscal year. Therefore, spectrum efficiency and frequency reviews are very important to minimize costs to the Department. Frequency deletion requests should be submitted to the CIO as soon as it is determined that there is no longer a need for the authorization.

## 5.9 Interference Reporting and Resolution

Although extensive coordination is accomplished, harmful interference between competing uses of the spectrum resources may occur. The resolution of interference should be accomplished at the lowest operating level. Resolution may require changes to specific transmission parameters.

If resolution is not possible at the lowest operating level, reports should be submitted through the chain of command to a higher level for resolution. When harmful interference occurs, a report of the incident should be prepared as discussed in the NTIA Manual, Section 8.2.30.

## 5.10 Database Maintenance

NTIA's System Review File and Government Master File databases are the official records of the licensed spectrum certification and frequency authorization respectively of the use of radiocommunication services and associated spectrum resources. These databases are used for a number of reasons such as spectrum engineering, compatibility analysis, and interference resolution. Data identifying the radiocommunication service and its transmission parameters should reflect current use and be accurate and complete or actions should be taken to assure that the data is current, accurate, and complete. Within the Department, entities should maintain a database that lists all licensed and non-licensed use of spectrum resources. This expanded database serves the same purpose as the licensed-only database.

### 5.10.1 Spectrum Supportability Records

Each field organization with radiocommunication service operations must keep centralized records for its office and subordinate entities. This active file documents spectrum supportability such as spectrum certification, frequency authorization, and non-licensed use of spectrum resources and conditions of its use. Active record files should consist of:

- Original correspondence substantiating spectrum requirements in a system proposal
- One copy of the applicable spectrum certification and/or frequency application requests as originally filed
- A copy of the initial NTIA Government Master File authorization received from the CIO
- Copies of successive correspondence and requests submitted for subsequent spectrum supportability as required by the NTIA
- Subsequent copies of NTIA authorizations
- Frequency measurement records of transmitters to assure compliance with NTIA authorization requirements.

Copies of current authorizations for all stations, with the exception of mobile and portable stations, are to be kept attached to the operating equipment.

Records for assignments which are deleted should contain a copy of the document requesting deletion, and the complete record should be transferred to storage and maintained in accordance with local field organization record retention procedures. The CIO is the central office of records and maintains a permanent record of all spectrum supportability.

### 5.10.2 Equipment Records

Electronic equipment is expensive and, in many cases, capable of being diverted easily from its authorized and/or intended use. For management purposes, it is suggested that an inventory be maintained listing the make, model, type, serial number, power, transmit and receive operating frequencies, modulation bandwidth and type of emission or emission designators, physical location, and network number for all equipment. The inventory should be updated annually following a physical survey.

### 5.10.3 Frequency Measurement

Frequency measurement records will be kept for all transmitters at base stations and repeaters to indicate frequency measurements and variances and the required adjustments. Frequency measurements for each base station and repeater will be made as often as necessary, and, as a minimum annually, to ensure compliance with requirements of the NTIA Manual, Chapter 5, Spectrum Standards.

For synthesized mobile and portable radios manufactured after 1982, it is sufficient to conduct frequency measurements during preventative maintenance and repair work.

Equipment consistently failing to meet and maintain frequency requirements will be programmed for replacement or modification as appropriate. Frequency measurement records should be kept as part of the maintenance data.

### 5.10.4 As-Built Drawings

As-built drawings are required and will be maintained for each type of spectrum-dependent equipment in use within the Department. Equipment drawings and system configuration charts will be maintained current by each field organization.

### 5.10.5 Maintenance Data

Records are essential to support life cycle data, programming, and budget submissions. Maintenance and repair documentation should:

- Include a preventive maintenance plan for each station. During preventative maintenance or repair, as a minimum, the parameters listed below should be measured and recorded before and after adjustments are made.
    - Frequency of operation
    - Transmitter power output
    - Power reflected
    - Maximum deviation for FM systems or modulation bandwidth for AM or SSB Systems
    - Receiver sensitivity
- Permit effective inventory control and establish experience levels for restocking essential replacement units, subassemblies, parts, and materials.

- Include life cycle maintenance and repair data for each transmitter, receiver, and associated major component. The record should include the dates on which preventive maintenance or overhaul was performed, nature of the work done, and identification of the technician and supervisor responsible for the maintenance and repair.

The maintenance record will be maintained for the life of each item of spectrum-dependent equipment within the Department and will accompany the equipment when transferred to another Departmental element or to property disposal.